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## Watershed Events



Spring 1994

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### *In This Issue...*

- [A Note From Bob Wayland](#)
- [The Link: Watershed Planning and Transportation Planning](#)
- [USGS Addresses Water Quality](#)
- [Ecological Risk: New Directions in EPA's Water Program](#)
- [Sasco Brook: A Watershed Project to Reduce Nonpoint Source Pollution in Coastal Areas](#)
- [The Blind People and the Watershed--A Parable](#)
- [Racing the Rain: Restoring Fire-Scarred Watershed in Southern California](#)
- [Oregon Investing Millions in Watershed Protection](#)
- [New USDA Chesapeake Bay Pact Seen as Model for Nation](#)
- [Upcoming Conferences](#)

- [Recent Releases](#)
  - [Request for Submissions](#)
  - [Credits](#)
- 

## **A Note From Bob Wayland, Director of EPA's Office of Wetlands, Oceans, and Watersheds**

What is ecosystem protection? What is the watershed approach? How do they differ? How are they the same? These are questions I am hearing more and more. I would like to take this opportunity to provide a perspective from my EPA corner, and describe recent developments that should help clarify these questions.

Let me begin with ecosystem protection. At least from EPA's perspective, we made a giant leap forward when, on March 5, 1994, a group of assistant administrators and senior managers from EPA met in Edgewater, Maryland to define ecosystem protection and to discuss strategies for ensuring that EPA programs worked to protect ecosystems. This high energy meeting, which I attended, resulted in a proposed strategy--the Edgewater Consensus--for ecosystem protection at EPA.

The Edgewater Consensus states that ecosystem protection is place-based environmental management that is driven by the key environmental problems that occur in particular geographic areas. It relies on stakeholders in those places to define the problems, to set priorities, and to help with the solutions. As envisioned, such place-based environmental management would integrate the goals for long-term ecosystem health with those for economic stability.

I want to emphasize that the Edgewater group's view of ecosystems includes both human and nonhuman living systems. We agreed that protecting human health and welfare and protecting natural systems are integral to ecosystem management. Threats to people and natural systems from contaminated ground water, hazardous waste disposal, and air pollution are all included in our idea of essential elements of ecosystem protection. In the long term, sustaining healthy ecosystems will help us protect both the human and natural environment.

Let me now turn to the watershed approach, and how it is related to ecosystem protection. I like to describe the watershed approach as "ecosystem management within watershed boundaries." EPA's 1991 Watershed Protection Approach Framework Document states that the watershed approach provides a framework for the development of "watershed-specific plans that prevent, reduce, or abate environmental degradation and risks to ecological systems and public health from all stressors and all sources..." The framework document also describes the watershed approach as dependent upon good coordination of federal, state, tribal, and local governmental and nongovernmental programs; involvement of interested and affected parties (stakeholders); and an iterative process whereby the problems within watersheds would be identified, appropriate actions selected and implemented, success evaluated, and revisions made, as needed. EPA Administrator Carol Browner has reinforced our vision for watershed management. In congressional testimony advocating adoption of the watershed approach during Clean Water Act reauthorization, the Administrator said "The Clinton Administration envisions an approach to water resource protection that looks first to the ecosystem itself, evaluates its needs based on risk, and then tailors workable solutions to those needs through the participation of stakeholders in every phase of the process."

Of course watershed boundaries are not always the most appropriate ones for ecosystem management. For certain living resources or ecological concerns (e.g., migratory bird flight paths) other boundaries are more appropriate. In some cases an ecosystem may be a large geographical area (e.g., the Great Plains, the Mississippi Delta) within which smaller watershed management projects may contribute to broader ecosystem goals. Overall environmental objectives will determine the most appropriate "place" on which to focus.

EPA's role in place-based management may be less influenced by the place than by the commitment, capabilities, and concerns of the other organizations and the opportunity to complement and further them in a team approach. As described by the Edgewater participants, the EPA role in "place-based" environmental management will often be that of catalyst or enabler. For any given place, EPA would establish a process for determining environmental needs and would orient its work to meet those needs. EPA would help to

define the vision, assist in convening collaborative efforts, bring to bear its expertise and authorities, and provide financial and technical assistance. I want to stress the importance of collaboration. EPA will not always be the lead but will frequently be a participant in an ecosystem management project convened by another entity such as another federal agency or a state or regional agency. Successful ecosystem management requires that all stakeholders play a role. At the federal level, a number of federal agencies will need to work together and build on each others' expertise and program responsibilities in order to assist locally-based efforts. In our work with watershed protection we have found these types of partnerships to be very valuable, and I am sure the same will continue to be true for ecosystem management efforts that employ other ecosystem boundaries.

To conclude, the Edgewater Consensus reinforces and provides a further impetus for continuing our watershed efforts. Indeed, our watershed efforts provide a foundation for achieving the vision articulated in the Edgewater Consensus.

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## **The Link: Watershed Planning and Transportation Planning**

**by Ginny Finch, Federal Highway Administration**

How can watershed managers exchange information with transportation planners to benefit both an area's mobility and its water resource protection needs? What are the best ways to assess the effects of transportation systems on watersheds? How can watershed managers participate in the transportation decision-making process?

New transportation planning regulations issued recently by the Federal Highway Administration (FHWA) and the Federal Transit Administration may offer some answers.

By helping to advance the environmental and planning goals of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA), the new regulations highlight the need for transportation decisions to be coordinated with environmental decisions and for statewide and metropolitan transportation plans and programs to respond to the area's management objectives. Decisionmakers are required to analyze certain "factors" during the planning process including factors that address impacts to aquatic resources (see box on page 11 for more details on factors).

Watershed planning is especially strengthened by a new requirement that statewide and metropolitan transportation plans cover at least a 20-year period. Environmental agencies and individual citizens also have greater opportunities to participate in the planning process, because Metropolitan Planning Organizations (MPOs) develop their plans only after an extensive process of coordination and public involvement. And since states must work cooperatively with MPOs, Indian tribal governments, and other groups, more partnerships may result.

The requirement for early and continuing agency and public involvement benefits watershed planning too. Private citizens and environmental groups not only have more opportunities to comment—they also have access to complete, timely information and key decisions.

This kind of partnership and outreach was evident at a landmark "Transportation Environmental Roundtable" held in March at North Carolina State University in Raleigh. The roundtable, conducted by the North Carolina Department of Transportation in cooperation with the university's Center for Transportation and the Environment, included senior managers from environmental advocacy groups and key leaders from state resource and regulatory agencies.

Participants looked at the department's current project planning process and learned the "in's and out's" of giving input to the right people at the right time. Two hours of the day-long roundtable were devoted simply to "listening."

Molly Diggins, chair of the state chapter of the Sierra Club, was so impressed with the roundtable she wrote a letter to North Carolina's Governor Hunt, expressing her appreciation for the event. "This unprecedented outreach effort shows great promise for improving communication. . .," she said. "There's a world of things we can agree on."

What measurable differences in watershed planning will result from the new transportation planning regulations? Here are a few

possibilities:

- Particularly sensitive sites may be identified and extra precautions taken in road construction;
- Project sightings may be adjusted to avoid vulnerable water bodies;
- New runoff control measures may be developed to avoid pollution from existing highway facilities.

For more information on how watershed planning can be coordinated with ISTEA and the new statewide and metropolitan planning regulations, contact Sheldon Edner, Transportation Planner, Metropolitan Planning Division (202) 366-4066 or Fred Bank, Ecologist, Environmental Analysis Division (202) 366-5004. The address for both is Office of Environmental Planning, FHWA, 400 Seventh St., SW, Room 3240, Washington, D.C. 20590.

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## **USGS Adresses Water Quality**

Is water quality improving in U.S. waters? In 1993, the U.S. Geological Survey (USGS) released the latest findings from the National Water Quality Assessment (NAWQA) program and expanded NAWQA. In addition, USGS released the 1990-1991 National Water Summary Report on Stream Water Quality. The findings of both these water quality initiatives indicate that although there have been improvements in the Nation's water quality, many water bodies are still below desired water quality levels. In 1993, USGS also continued to be very active in working to improve water quality information through the Intergovernmental Task Force on Monitoring Water Quality (ITFM), a task force that began in 1992 and that USGS co-leads with the U.S. Environmental Protection Agency (EPA).

The NAWQA study findings released in 1993 include: (1) concentrations of DDT in fish in the lower Yakima River basin (central Washington) are among the highest measured in the Nation; (2) a wide variety of pesticides, semivolatile organic compounds, and trace-metal contaminants were found in streambed sediments, clams, and fish in the Potomac River basin (drains parts of Pennsylvania, Maryland, Virginia, and West Virginia); and (3) water analysis from the Delaware River (Kansas) shows high concentrations of atrazine.

The NAWQA program's mission is to provide a comprehensive and nationally consistent description of the status and trends in the quality of the Nation's surface- and ground-water resources. USGS established the pilot phase of the NAWQA program in 1985 in six river basins to assess historical, current, and future water quality conditions in representative river basins and aquifers nationwide. Describing the relations between natural elements, human activities, and water quality conditions and defining those factors that most affect water quality in different parts of the Nation are primary objectives of the NAWQA program.

In 1991 NAWQA initiated investigations in 20 river basins and aquifers (referred to as study units) thus beginning the transition from a pilot program to a full-scale program. On March 8, 1993, Secretary of the Interior Bruce Babbitt added 20 more study units to the NAWQA program. NAWQA will be fully operational in 1997 when the final 20 study units are brought into the program bringing the total to 60. These 60 study units represent a combination of river basins and aquifers that together account for 60 to 70 percent of the Nation's water use and population served by public water supplies and cover about one-half of the U.S. land area.

The similar design of each investigation and use of standard methods make comparisons among the study units' results possible, and regional and national assessments can be made. Each study unit is placed on an alternating cycle of a 3- to 5-year period of intensive data collection and analysis followed by a 5- to 6-year period of less intensive study and monitoring. Due to the large geographic extent and large variability in environmental factors throughout the U.S. and to limited resources, these regional and national assessments, referred to as "National Syntheses," focus on a limited set of high priority, national, water quality issues including nonpoint source pollution, sedimentation, and acidification during each cycle. The occurrence of nutrients and pesticides in rivers and ground water were selected as the first issues investigated by national synthesis. The next topic for national synthesis, to be addressed in 1994 and 1995, is the occurrence and distribution of volatile organic compounds. The assessments are carried out in cooperation with several hundred federal, state, and local agencies.

The need to better monitor our water quality and define the factors adversely affecting aquatic resources are supported by the findings of the 1990-1991 National Water Summary Report on Stream Water Quality. This report found that, although water quality remained the same or improved during the 1980s, it still failed to meet desirable levels at many monitoring stations. The report contains both national and state-by-state analyses of traditional indicators of water quality such as dissolved oxygen, nutrients, sediment, and

bacteria. The report notes that data on biological and toxicological aspects of stream-water quality are fragmentary and leave many unanswered questions about water-quality changes.

Further evidence of the need to continue improving water quality and monitoring is provided by the *National Water Quality Inventory: 1992 Report to Congress*\* released by EPA in April 1994. This report is issued every two years and is an aggregation of state information that presents water quality in terms of whether state water quality standards are met. The 1992 report finds that about one-third of the waters assessed are impaired to varying degrees. The report indicates that leading sources of water quality impairment include agriculture, municipal point sources, and urban runoff/storm sewers and leading causes include siltation, metals, nutrients, and pathogens.

In response to the need for improved water quality information for decisionmaking nationwide, the ITFM is developing a strategy to provide more cost-effective and useful water quality information to the public and private sectors. This information is used to protect human health and the environment, to manage natural resources, and to support a robust economy. In January 1993, the ITFM released its first report, *Ambient Water-Quality Monitoring in the United States: First Year Review, Evaluation and Recommendations*. In May 1994, an interim progress report will be released.\*\*

For more information, contact Terry Thompson, USGS, 413 National Center, Reston, VA 22092, (703) 648-6857.

\*This report (document number: EPA841-R-94-001) is available from NCEPI, 11029 Kenwood Road, Building 5, Cincinnati, OH 45242, FAX: (513) 891-6685. A shorter summary report *Quality of Our Nation's Waters: 1992* (EPA841-S-94-002) is also available.

\*\*These reports are available from the Office of Water Data Coordination, 417 National Center, Reston, VA 22092, (703) 648-5023.

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## **Ecological Risk: New Directions in EPA's Water Program**

**by Suzanne Marcy, U.S. Environmental Protection Agency**

The U.S. Environmental Protection Agency (EPA) is incorporating watershed ecosystem management into its regulatory and nonregulatory water programs. To help ensure the success of watershed management, EPA initiated an Agency-wide effort to develop guidance for conducting watershed level ecological risk assessments.

To develop the foundation for this national guidance, a Technical Panel, jointly sponsored by EPA's Office of Water and Risk Assessment Forum and chaired by the Office of Water's Suzanne Marcy, was established in 1993 to produce watershed level ecological risk assessment case studies. The Technical Panel includes five workgroups composed of staff from EPA laboratories, Regional offices, and all program offices plus professionals from other federal, state, and local organizations. Watersheds selected as case studies include the Middle Platte River Wetlands, Nebraska; Big Darby Creek, Ohio; Clinch River, Virginia; Snake River, Idaho; and Waquoit Bay Estuary, Massachusetts. These watersheds were selected because of their diverse chemical, physical, and biological stressors; their important ecological resources; the amount of data already available on these watersheds; and the willingness of local professionals to become involved.

The watershed ecological risk assessments will both follow and expand the principles established in EPA's *Framework for Ecological Risk Assessment*.\* Guidance based on the case studies will support ecological risk assessments on a landscape scale in watersheds of different types and sizes and those containing a variety of stressors and ecological resources of concern. The potential benefits and limitations of using ecological risk assessments in EPA's water programs will be illustrated using the case studies.

All case study workgroups are completing problem formulation in preparation for a scheduled review by the Risk Assessment Forum Ecorisk Oversight Group in May 1994. Problem formulation is the initial phase of the risk assessment. In this phase the goals, breadth, and focus of the assessment are established. Major factors considered during this process include stakeholder values, ecosystem and stressor characteristics, observed ecological effects, and ecological endpoints of concern. This evaluation results in the development of conceptual models that include hypotheses about potential risks to ecological resources within the watershed ecosystem. Drafts of the completed case studies are anticipated in autumn 1994 when they will undergo outside peer review through the Risk Assessment

Forum. (Preliminary results of the case studies will first be available in 1995.) Final publication of the case studies is planned for December 1995.

The experience gained during development of the case studies coupled with the combined experience of local and state implementation of watershed management initiatives will be used by EPA's Office of Water to write guidance for risk assessors and risk managers on how to develop and use watershed ecological risk assessments to support the development of effective watershed management plans. This guidance should also be available in December 1995. The case studies and guidance documents will be used as the basis for outreach, training modules, and videotapes to help local, state, and federal risk managers. The case studies will also support future development of Agency-wide guidelines for ecological risk assessment on a landscape scale.

Watershed management plans based on ecological risk assessments will help risk managers to prioritize risk from multiple stressors and target limited environmental dollars to achieve desired outcomes. This approach supports the integration of current command and control regulatory tools with non-traditional approaches.

For information, contact Suzanne Marcy, U.S. EPA (4305), 401 M St., SW, Washington, D.C. 20460, (202) 260-0689.

\* This document is available through the Environmental Research and Information Office, (513) 569- 7562, publication number EPA/630/R-92/001.

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## **Sasco Brook: A Watershed Project to Reduce Nonpoint Source Pollution in Coastal Areas**

**by Walter Smith, Water Quality Coordinator, Soil Conservation Service and Jay Fain, Fairfield Count Soil and Water Conservation District**

In Connecticut, coastal watersheds have been targeted as priority watersheds for reducing nonpoint sources (NPS) of pollution to [Long Island Sound \(14k\)](#). One watershed of concern is the Sasco Brook Watershed, located primarily in the coastal municipalities of Fairfield and Westport. This watershed directly discharges into Long Island Sound and is primarily urban in nature. The Long Island Sound Study (LISS), authorized by the U.S. Environmental Protection Agency's (EPA) National Estuary Program, identified Sasco Brook Watershed as a first tier and a top 10 priority watershed for nitrogen reduction. The watershed is threatened by potential development and impacted by current development and urbanization.

To examine nonpoint sources of pollution and provide the basis for the identification of remediation of those sources, the Fairfield County Soil and Water Conservation District (FCSWCD) and the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS), developed a Geographic Information System (GIS) methodology. Because of its facility in managing and analyzing spatial data on a watershed basis, GRASS (Geographic Resources Analysis Support System) was the chosen GIS for the project.

Twenty-three categories of landuses were developed and field checked within Sasco Brook. Later they were reclassified into eight categories based on category similarities. Along with the landuse map, other GIS layers include soils, topography (later converted to an elevation model), roads, streams, water, and open space. The soils map, the most intricate and complex of the layers, was reclassified into other layers based on their limitations and potentials found in the Fairfield County Soil Survey (drainage, hydrologic soil group, septic system limitations, etc.). (A detailed report of the development of these layers is now being developed and should be available soon by contacting the FCSWCD.)

A quick summary of the developed data shows that the watershed comprises 6,637 acres. Residential development and active recreational open space occupy 2,132 acres of the watershed (32 percent); woods, wetlands, and water comprise 3,642 acres (55 percent); agriculture (primarily supporting animal populations—pastures, paddocks, barnyards, hay) occupies 379 acres (6 percent); and impervious areas (roads, commercial and industrial areas, and high density residential areas) occupy 484 acres (7 percent).

The commercial/industrial area is linked to a sewage treatment plant that is not sited within the Sasco Brook watershed. Ultimately, the largest contributor of NPS pollution in the watershed derives from residentially developed areas and the impervious Interstate 95/Route

1 corridor.

The LISS and the local municipalities identify nitrogen and bacteria as primary nonpoint source pollutants. Nitrogen has been characterized by nitrogen export potentials derived from the LISS nonpoint source workgroup. Nitrate and ammonia levels are being quantified from data generated at two sites on the brook by the Nature Center at Westport.

To address the NPS problems, a phased 5-year project, just now being funded for the first year, has been initiated. The need for the project was identified in the project proposal to the Connecticut Department of Environmental Protection for funding under EPA 319 implementation grants as twofold: (1) to reduce nitrogen and bacteria which degrade the quality of the water and the shellfish resources at the mouth of the brook from entering the stream system, and (2) to demonstrate a watershed approach to coastal waters management to protect the riverine systems, wetlands, embayments, and shellfish resources of coastal Long Island Sound watersheds. The project's approach is essentially three-tiered—education, demonstration, and implementation.

NPS remediation will concentrate on a whole watershed approach and address all contributions of nitrogen and bacteria into the system to protect and restore the watershed and its wetlands. As stated, nitrogen and bacteria sources represent the largest contribution to watershed water quality impairment. The sources derive from residentially developed landuses (septic systems, stormwater runoff) and the impervious Interstate 95/Route 1 corridor, as well as nitrogen and coliform animal waste contributions. Multiple benefits will be derived from treating other contributions of nonpoint source pollution as well.

There are no point sources of pollution in the watershed; a fact that allows the project the good fortune of potentially being able to quantify reduction of NPS over time.

The approach for controlling NPS on a watershed level includes: (1) demonstrating a cooperative intergovernmental and resident coalition to treat NPS; (2) reducing nitrogen and bacterial inputs from residentially derived sources through the use of cost-effective best management practices (BMPs); (3) reducing nitrogen and coliform inputs from animal sources; (4) educating the citizenry on watersheds and the use of BMPs for NPS controls; (5) promoting the institutionalization of water quality regulations across applicable regulatory commissions (planning and zoning, wetlands, conservation); (6) providing technical assistance to promote voluntary participatory implementation of BMPs; and (7) demonstrating the applicability of this approach in other coastal watersheds.

Activities on the first-year implementation schedule include forming committees, developing a mass watershed mailing list and an NPS survey for mailing, monitoring water quality for physical parameters (biological parameters will follow in succeeding years), prioritizing BMPs and selecting sites, producing brochures, and implementing workshops.

Project participants include the Fairfield County Soil and Water Conservation District, the USDA Soil Conservation Service, the Connecticut Department of Environmental Protection, the University of Connecticut Cooperative Extension System, Connecticut Seagrant, the Nature Center for Environmental Activities, local municipal officials from Fairfield and Westport, and local watershed residents.

For more information, contact the FCSWCD at (203) 744-6108.

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## **The Blind People and the Watershed--A Parable**

**An Adaptation by Jeffery Kiedel**

*(Editor's note: Below is an adaptation of the Indian parable, "The Blind Men and the Elephant," that Jeffrey Kiedel, coordinator for the Upper Arkansas Watershed, has created as part of his efforts to promote an informational watershed forum. Mr. Kiedel has found this adaptation to be a friendly, non-threatening presentation opening. At a recent conference, the parable was taken a step further when it was adapted into a skit and performed by a group of high school students. The skit was very successful in conveying the message of the adapted parable. Mr. Kiedel passes his parable adaptation along in hopes that others involved in watershed coordination / communication will find it useful and adaptable to their situation.)*

Once upon a time, seven blind people from the Land of Stereotypes came to the Azure Watershed. They all marvelled at the rich natural resources the area had to offer. Because they were blind, they travelled together, walking one behind the other, talking and communicating with each other so they would not fall down.

Soon they came to a tributary stream and followed it downhill. More tributaries joined it, and eventually the blind people were at the banks of the Azure River.

The first blind person was a miner. He had noticed that the geologic formations nearby held gold, silver, and other mineral ores that all the world would need to make important things. To get the minerals from the mountains and to dissipate mining's waste he would need water from the river. "This river was made for mining," he said.

The second blind person was a farmer. She noticed all the level land in the valley and nearby plains, and thought, "This is a good place to grow food for the people of the world. Too bad it doesn't rain much around here." She then realized, that she could divert water out of the river and tributaries to water her crops. As she began to dig the ditch, she said, "This river was made for agriculture."

The third blind person was a fisherman. He felt the splash of the cool river water and the tickle of a mayfly landing on his arm. "This is a good place for the people of the world to catch fish," he thought. As he readied himself for the first cast, he said, "This river was made for fishing."

The fourth blind person was a city mayor. She knelt down and tasted the river and thought that the water was good to drink. "But my city is so far away," she said. "If I could only get this water to my city, it could grow and prosper. It would be a great city of the world." From behind a rock popped up an engineer. She said, "I can help you build a dam to hold the river water and pipe it to your city." The mayor was pleased and said, "This river was made for cities."

The fifth blind person was a rafter. He said, "Wow, the holes in this river are awesome. Class four or five, for sure." "This is a great river for the people of the world to scream, laugh, and get an adrenaline rush," he thought. As he strapped on his life jacket, he said, "This river was made for rafting."

The sixth blind person was an environmentalist. She thought, "This watershed is so beautiful." "Back in the land where I came from (the Land of Stereotypes) everything is so polluted and scarred with so many people. I can't let that happen here," she said. "I must save it for the world." As she pondered the meaning of life, she said, "This river should be left alone."

The seventh visually impaired person was a government bureaucrat. "With all these people competing for the use of the river, they will need my help," she thought. "I will have to regulate all of them. I can show the world how effective government works." And as she made her budget request to Congress, she thought, "This river was made for regulating."

At the end of the day, the blind people were tired. They began to talk about the Azure Watershed.

"This river was made for mining," said the first blind person.

"What? You're wrong. This river was made for farming," said the second.

"Whoa," said the third blind person. "This river is for fishing."

"You're wrong. This river is for cities," said the fourth.

"NOT!" said the fifth blind person. "This river is for rafting."

"Rafting?" said the sixth. "This river should be left natural."

"I am with the government," said the last. "I am here to help you."



The blind people could not agree. Each one shouted louder and louder. And called his or her lawyer.

Finally, a voice from the watershed said, "Stop!"

The seven blind people stopped shouting. "The Azure Watershed is a very big ecosystem. Each of you has only considered one part. You must put all the parts together to understand what the watershed really is," said the voice.

The seven blind people listened. They sat down together, and talked quietly. Although they did not agree on everything, they listened to each other sincerely. Afterwards, they took off their blinding glasses and saw more than they did before. And even though they were no longer completely blind, they travelled together, one beside the other, talking and communicating with each other, so they would not fall down.

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## **Racing the Rain: Restoring Fire-Scarred Watershed in Southern California**

**by Anita Brown, U.S. Department of Agriculture Soil Conservation Service**

In October 26, 1993 the first of 26 wildfires erupted in southern California. When the last flames were finally extinguished, southern California residents were thanking thousands of weary firefighters. The brave blaze battlers had come from all over California, and throughout the west, to control the firestorms in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties.

But when they left, there were other challenges to address. The fire had claimed 3 lives, left 162 injured, and caused half a billion dollars in damages. In the wake of the wildfires laid the charred remains of over 1,200 structures across 340 fire-ravaged square miles--much of it steep denuded watershed sitting directly above homes and public facilities.

"The communities' first post fire thoughts were to aid victims and to then prevent further damage and devastation," said Bob Dean, Team Leader for one of the five rehabilitation teams coordinated by the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS). "Even people who had never thought about it before, seemed to intuitively sense the danger of being surrounded by miles and miles of bare slopes on the eve of the rainy season."

The mountains had been burned bare of vegetation and threatened the bottom-of-the-bowl communities below them. According to SCS geologist Julia Grim, the potential for danger in some of the burn areas was increased by the relative geologic youth of the southern California landscape. "These young geologic areas are given to periodic trembling and shaking and the mountains slope steeply without the buffering benefit of rolling foothills." The scenic property in the heart of the Los Angeles basin commands a premium price, leading to construction against steep mountain slopes.

While the fires were still consuming hills and homes, SCS was assessing the watershed damage and planning restoration measures. SCS established five Emergency Fire Rehabilitation Centers to carry out Emergency Watershed Protection measures and to provide individual conservation assistance to homeowners, parks, associations, landscapers, construction specialists, and others.

"Homeowners were grateful for government assistance, but they were anxious to know what they could do for themselves," said Assistant Team Leader Al Cerna. SCS sent out teams--soil scientists, engineers, geologists, and biologists--who met with thousands of homeowners and recommended ways for them to divert the likely flooding and debris flows from further damaging their homes and property. "Sandbagging was the most often employed remedy," said conservationist Dennis Nay. "SCS guided crews in properly filling and placing the bags and helped to obtain and coordinate the supplies and labor needed to get the job done." Other suggestions to homeowners included seeding, clearing streams and channels, creating and restoring drainage and diversion channels, and installing trash racks to keep pipes free of rocks and debris that could clog them and cause neighborhood flooding.

"Citizens came together--in groups of 10 to 500--at homeowners association meetings to voice their concerns and to gather information," said SCS engineer Mark Cocke. "Representatives from every level of government attended and the momentum of crisis

seemed to spur the individual citizens, organizations, and units of government to unite in their efforts to restore the damaged watersheds."

Working on the watershed level, SCS sent out rehabilitation teams to complete the Damage Survey Reports (DSRs) needed to identify the damage and recommend restoration measures. "Identifying technical problems, and solutions turned out to be the easy part," said SCS engineer Doug Toews. "One of the biggest challenges was overcoming the problem of sponsorship. Most of the watersheds involved property managed by some combination of federal, state, county, and city governments; special districts or interests; and private citizens. We had to find a sponsor and then get those involved to agree and approve the proposed solutions in a timely manner." Once a DSR was completed and an appropriate sponsor was found from a local unit of government, the federal emergency funds were committed for that project.

The first restoration project began in early November with the seeding of the Altadena hills. Seeding in other areas soon followed, as did hydroseeding, sandbagging, and silt fencing. As the DSRs were completed, the race to beat the rains continued, and SCS engineers busily designed structures to alleviate the imminent danger of flooding and mudflows. They designed debris basins, trash racks, concrete channels, check dams, pipe and wire revetments, debris barriers, and more.

All told, there were 93 DSRs of exigency work completed at a cost of just over \$6.5 million. So far, the rains, earthquake, and aftershocks have created only minor problems. However, an additional \$7 million has been allocated to complete remaining non-exigency disaster measures that will reduce watershed hazards and result in reduced repair work. These measures are scheduled to be completed by December 1994.

For more information, contact Anita Brown, SCS, 2121-C Second Street, Suite 102, Davis, CA 95616, (916) 757-8241.

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## Oregon Investing Millions in Watershed Protection

As of April 1994 approximately \$800,000 in funding had been approved by the [Oregon Watershed Health](#) Program for projects to restore the vitality of watersheds in two targeted areas in Oregon the Grande Ronde Basin in northeast Oregon and the South Coast/Rogue Basin. These basins were selected because of concern for existing and proposed Endangered Species Act listings. The funded projects include riparian fencing, stream restoration, tree planting, instream woody debris and off-channel ponds for winter habitat, culverts for fish passage, fish screens and headgates for irrigation diversions, and high school and adult watershed education. The Oregon Watershed Health Program expects to approve a total of approximately \$3 million in projects for this year's field season.

Oregon's State Legislature, under the Governor's recommendation, established the Oregon Watershed Health Program in May 1993. The Legislature dedicated \$10 million in lottery funds for projects in the two targeted basins that will restore economic stability to the State's natural resource based economy and achieve productive and sustainable watershed resources. Specific uses for the funds fall into three categories:

- Pinpointing site specific watershed improvement needs;
- Reaching consensus on ways to address the needs; and
- Helping fund recovery actions and monitor results.

Stream flow, water quality, wetland and riparian enhancement, fish passage and habitat improvement, and reforestation are among the specific issues that are being emphasized. In addition, recovery of key anadromous fish stocks and reducing the potential for other species being listed as threatened or endangered under the federal Endangered Species Act are being promoted.

The Oregon Strategic Water Management Group (SWMG) is the lead state entity for overseeing the Oregon Watershed Health Program and implementing the watershed management strategy for Oregon. This group serves as a coordinating body for state agencies to assess and support local solutions to resource management issues and needs. The SWMG includes representatives from the governor's office, 13 state agencies, and 5 federal agencies.

Administration of the Oregon Watershed Health Program is carried out by the Oregon Water Resources Department (WRD) in

partnership with nine other state agencies. Selected staff from these nine state agencies, who are located both in the state offices and in field offices established in the two basins by the State Legislature, constitute the Watershed Health Team. The Team enables state agencies to work together in a more collaborative manner to provide support and assistance for local watershed management. The state agencies represented on the Team are working together to bring forward information and data bases which will be a part of assessments and contribute to funding decisions for watershed action plans. The field offices are responsible for collaborating with local watershed councils, state and federal agencies, regional and district offices, tribal and local governments, and others on watershed improvements.

Local involvement is a key component of the Oregon Watershed Health Program. The State Legislature intended for local citizens to take the lead in identifying the problems and implementing the solutions within their watersheds. To facilitate local involvement, the Oregon Watershed Health Program is encouraging and assisting communities in these two basins to set up local watershed councils. Local governments appoint the council members, and SWMG approves the appointments. For example, ranchers, irrigators, timber, the environmental community, and the Umatilla Indian Nation are represented on the watershed council for the Grande Ronde Basin. These councils are responsible for fostering communication and cooperation and are charged with preparing and implementing watershed action plans, with the help of the Watershed Health Team, that are based on watershed assessments that target areas for management attention.

Using the watershed action plans, the Watershed Health Team provides technical assistance in developing, implementing, and monitoring projects which contribute to long term sustainability. The Team has completed interagency agreements, established preliminary performance measures, assisted with the development of project funding criteria, identified priority watersheds for action, developed early action projects, developed assessment and monitoring for target basins, and developed and implemented priority projects in each basin.

For more information, contact Mary Lou Soscia, Oregon Watershed Health Program, Oregon Water Resources Administration, 158 12th St., N.E., Salem, OR 97310, (503) 378-8455 ext. 301.

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## **New USDA Chesapeake Bay Pact Seen as Model for Nation**

**by Elliott Finkelstein, Chesapeake Bay Program**

On January 25, 1993, U.S. Department of Agriculture (USDA) Assistant Secretary James Lyons and Maryland Governor William Donald Schaefer signed a precedent setting pact aimed at ensuring a broader and more coordinated approach to managing resources, controlling agricultural runoff, and reducing nutrients in the Chesapeake Bay restoration effort. This agreement between USDA and the Chesapeake Bay Program targets the USDA to provide an integrated approach to environmentally sound and economically viable farm management practices in the Chesapeake Bay watershed states of Maryland, Pennsylvania, and Virginia. The USDA's approach to agricultural management in the Chesapeake region ultimately will be incorporated in watershed-based agricultural efforts throughout the country.

"The Bay Agreement serves as a model for what we can do in other places," said Lyons. Through the agreement, members of the USDA will work closely with agricultural agencies in Pennsylvania, Maryland, and Virginia; the U.S. Environmental Protection Agency (EPA); and the other federal agencies involved in the Chesapeake Bay restoration to better deliver services to farmers.

Schaefer, who serves as the chairman of the Chesapeake Executive Council (the Chesapeake Bay Program's policymaking body), said reducing the amount of nitrogen and phosphorus entering the Bay from farmland was a key to the USDA-Chesapeake Bay Program pact. "We have to do it faster, and we have to do more," Schaefer said. The Chesapeake Bay Program is committed to reducing nutrients entering the Bay by 40 percent by the year 2000.

Nutrients enter the Chesapeake from many sources, but studies have shown that agricultural activities, such as crop production and livestock operations, are a chief source of the Chesapeake Bay's nutrient pollution. In 1992, the Chesapeake Executive Council launched the Agricultural Nonpoint Source Initiative to address the challenges that farmers face in reducing agricultural runoff and nutrient pollution. The findings from the initiative were presented to the Chesapeake Executive Council a year later, in September 1993. The USDA role in the Chesapeake Bay restoration is the direct result of recommendations made by the Nonpoint Source Initiative.

"The Bay Agreement strengthens the team approach," Lyons stated. "The USDA works very closely with landowners and land-users and we are committed to sharing ideas and sharing resources. This approach, Lyons said, will include a coordinated effort involving the USDA's Soil Conservation Service (SCS), its Extensive Service, and its Agricultural Stabilization and Conservation Service (ASCS). Under the new agreement, the USDA will:

- Direct its agencies, including SCS, ASCS, and Extension Service, to work with the Bay jurisdictions to develop and implement a program that focuses on total resource management on agricultural lands. This program will provide an integrated approach to farm management featuring a wide range of best management practices to help farmers protect natural resources while maintaining production goals.
- Work with the Chesapeake Bay Program to spearhead research crucial to providing farmers with innovative methods to help protect the Chesapeake Bay.
- Coordinate federal agricultural efforts on behalf of the Bay by participating in various Bay Program committees.
- Cooperatively implement federal and state agricultural pollution prevention programs to help stop pollution before it starts.
- Secure appropriate funding and staffing resources to carry out its goals.

U.S. Senator Paul S. Sarbanes (D-MD), who attended the agreement signing, said the USDA's new commitment to the Chesapeake Bay restoration was important to the effort's success. "No other federal agency can reach as many landowners on the ground," he said, adding that the USDA will bring to farmers not only a knowledge of good conservation and environmental practices, but good economic practices as well.

For more information, contact Elliott Finkelstein, Chesapeake Bay Program Communications Office, 410 Severn Avenue, Suite 109, Annapolis, MD 21403, (410) 267-5756.

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## Upcoming Conferences

### **National Symposium Restoration of Aquatic Ecosystems: Developing a National Agenda June 20-23, 1994 St. Paul, Minnesota**

This symposium will bring together various agencies and organizations to help develop a national agenda or strategy for facilitating the restoration of wetlands, streams, and lakes on a watershed basis at all levels of government and by the private sector in the United States and other countries. A special case-study on the Upper Mississippi basin will also facilitate aquatic ecosystem restoration in the context of post-disaster response to severe flooding in 1993. For more information, contact The Association of State Wetland Managers, P.O. Box 2463, Berne, NY 12023-9746, (518) 872-1804, FAX: (518) 872-2171.

### **Water Quality Standards Academy August 22-26, 1994 Washington, D.C.**

This course offered by the U.S. Environmental Protection Agency is a basic introductory course designed for those with fewer than six months experience with the water quality standards and criteria programs. This comprehensive and highly structured course introduces participants to all aspects of the water quality standards and criteria programs, including the interpretation and application of the Water Quality Standards Regulation, policies and program guidance, the development of water quality criteria (human health, aquatic life, sediment, and biological), and all other facets of the program. For more information, contact Michele Vuotto, Dynamic Corporation, 2275 Research Blvd., Suite 500, Rockville, MD 20852, (301) 417-6090, FAX: (301) 417-9801.

### **Celebrating the Year of the Coast: Innovations in Coastal Management September 7-9, 1994 Wilmington, North Carolina**

The primary purpose of this conference is to increase participants' knowledge of how to better achieve coastal resource protection when faced with rapid coastal growth and economic development potential. For more information, contact Allison L. Ballard, Jordan McColl, Inc., P.O. Box 3415, Wilmington, NC 28406, (910) 762-6711, 1-800-258-6711.

**Watersheds '94: Creating the Links...People, Politics, Science and Stewardship September 28-30, 1994 Bellevue, Washington**

This conference will identify approaches and strategies for effective stewardship of our watersheds. The goal of the conference is to share information about watershed tools, technology, and philosophies and to build partnerships. For more information, contact Andrea Lindsay, EPA, (206) 553-1896, or Bob Naiman, University of Washington, (206) 543-6920.

**Second Annual Friends of Trashed Rivers National Conference September 29 - October 1, 1994 New York, New York**

Representatives from intercity communities and grassroots organizations will participate in panel discussions and workshops relating to urban river pollution. Conferees will discuss potential solutions to the problems afflicting urban waters. For more information, contact Karen Siletti, (201) 666-2666.

**The 1994 International Hazardous Material Spills Conference October 31 - November 3, 1994 Buffalo, New York**

This conference will provide community groups, state and local governments, industry, and international guests with an opportunity to learn more about how to prevent, prepare for, and respond to hazardous materials accidents. The goal of this conference is to create partnerships for hazardous materials safety. For more information, contact Sarah Bauer, U.S. Environmental Protection Agency, Mail Code 5101, 401 M Street, SW, Washington, D.C. 20460, (202) 260-8247.

**Watershed WISE: A Workshop on Watershed Ecology November 14-16, 1994 Grand Junction, Colorado**

This workshop is intended to encourage and support practical and effective approaches to watershed stewardship, and allow participants to share experiences and exchange ideas, tools, technology, philosophy, and values useful to watershed initiatives. The workshop is designed for all stakeholders and stewards who have concern for and experience with western watersheds. For more information, contact Thorne Ecological Institute, 5398 Manhattan Circle, Suite 120, Boulder, CO 80303, (303) 499-3647, FAX: (303) 499-8340

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## Recent Releases

***The National Environmental Benefits of the Clean Water Act (EPA842-K-93-001)*** - This brochure highlights national statistics and progress made in 14 case studies through the secondary treatment of municipal wastewater. Contact NCEPI, 11029 Kenwood Rd., Bldg. 5, Cincinnati, OH 45242, FAX: (513) 891-6685.

***A State and Local Government Guide to Environmental Program Funding Alternatives (EPA 841-K-94-001)*** - This pamphlet provides an overview of traditional funding mechanisms and introduces state and local governments to innovative alternatives to traditional funding. The focus is on nonpoint source pollution, but funding sources and mechanisms can be applied to environmental programs in general. Contact NCEPI, 11029 Kenwood Rd., Bldg. 5, Cincinnati, OH 45242, FAX: (513) 891-6685.

***Common Groundwork: A Practical Guide to Protecting Rural and Urban Land*** - This handbook for making land-use decisions describes over 30 growth management tools for protecting land such as zoning, agricultural districts, and land trusts; contains histories that show different ways to protect land; and explains the benefits of land conservation. Contact the Institute for Environmental Education, 1-800-484-7949, ext. 1993.

**Lake Smarts, The First Lake Maintenance Handbook** - This document is a do-it-yourself guide for citizens to solving lake problems. Contact the Terrene Institute, (202) 833- 8317. The charge for the document is \$18.95 plus shipping and handling.

**Toward a Watershed Approach: A Framework for Aquatic Ecosystem Restoration, Protection, and Management** - This document defines watersheds; presents several case studies; summarizes state initiatives, non-governmental efforts, and federal efforts; and presents a vision of the future. Contact NCEPI, 11029 Kenwood Rd., Bldg. 5, Cincinnati, OH 45242, FAX: (513) 891-6685.

**Migratory Songbird Conservation** - This brochure discusses the causes and effects of the declining neotropical migrant bird population. Contact Partners in Flight Newsletter, National Fish and Wildlife Foundation, 1120 Connecticut Ave. NW, Suite 900, Washington, DC 20036.

**Safe Drinking Water Act Reauthorization Overview, February 1994 (EPA 810-S-94- 001)** - This document discusses the major issues surrounding reauthorization of the Safe Drinking Water Act. The document outlines the Administration's reauthorization recommendations and discusses drinking water issues and solutions, including myths and facts about drinking water. Contact EPA's Office of Water Resource Center, (202) 260-7786.

**Chesapeake Bay Basin Toxics Loadings and Release Inventory**- This inventory is the first basinwide inventory of both point and nonpoint source chemical load and release estimates developed for the Bay watershed. This is the first Bay inventory to compile an inventory of sources, loads, and releases throughout the entire Bay Basin. It provides a relative sense of where chemicals coming to the Bay originate and what paths they take. For copies, call 1-800-YOUR-BAY.

**Chesapeake Bay Basin Toxics Loading and Release Inventory: Technical Update - Point Source Loads by Facility**- This update replaces Appendix Table 11 in the Chesapeake Bay Basin Toxics Loading and Release Inventory by providing an expanded listing of chemical load estimates at the facility level. For copies, call 1-800-YOUR-BAY.

**President Clinton's Clean Water Initiative (EPA 800-R-94-001)** - Presents the Administration's proposal for reauthorizing the Clean Water Act. Contact EPA's Office of Water Resource Center, (202) 260-7786.

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### Request for Submissions

Submissions to *Watershed Events* are always welcome. Submissions should be 1-3 pages in length and should include a contact person. Send submissions to:

Anne Robertson U.S. EPA (4501F) 401 M Street, SW Washington, D.C. 20460 (202) 260-9112 FAX: (202) 260-2529

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**Watershed Events** is intended to update interested parties on the development and use of watershed protection approaches.

**Watershed protection approaches are integrated and holistic. That is, they consider the primary threats to human and ecosystem health within the watershed, involve those people most concerned or able to take actions to solve those problems, and then take corrective actions in a comprehensive manner.**

**Questions and comments about Watershed Events should be directed to the editor:**

Anne Robertson, (202) 260-9112 Office of Wetlands, Oceans and Watersheds U.S. EPA (4501F) 401 M Street, SW Washington, D.C. 20460

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